



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,023	08/17/2003	Hugh Christopher	1-73820	3208
27377	7590	01/19/2005	EXAMINER	
MACMILLAN, SOBANSKI & TODD, LLC ONE MARITIME PLAZA-FOURTH FLOOR 720 WATER STREET TOLEDO, OH 43604			BINDA, GREGORY JOHN	
			ART UNIT	PAPER NUMBER
				3679

DATE MAILED: 01/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/643,023	CHRISTOPHER, HUGH	
	Examiner Greg Binda	Art Unit 3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 13 December 2004.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-13 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 13 December 2004 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>20031112</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

*Election/Restrictions*

1. Applicant's election with traverse of Species I shown in Figs. 2, 3 & 5 in the reply filed on December 13, 2004 is acknowledged. The restriction is withdrawn, not because the grounds for traversal are persuasive, but rather due to the discovery of prior art (e.g. Moeller, US 2,889695) that shows the species are patentably indistinct.

*Drawings*

2. The drawings are objected to because:

- a. The reference numeral 14' appears in Fig. 5a, but is not mentioned in the description.
- b. In Fig. 3 the reference numerals 14 & 30 are transposed.
- c. The limitations of claims 12 & 13 are not shown in the drawings.

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement

Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Specification*

4. The disclosure is objected to because

- a. Page 2, line 17, the word "noise" is misspelled.
- b. Page 3, line 3, the word "accuracy" is misspelled
- c. Page 7, line last, "sleeve 14" should be changed to "sleeve 12"
- d. Page 9, line 25; page 11, lines 22-24 and page 12, line 19, "damper 30" should be changed to "damper 20"

5. The specification is objected to as failing to comply with 37 CFR 1.71 and 1.75(d)(1) because the detailed description fails to provide proper antecedent basis for the subject matter at claim 1, lines 3 & 8; claim 2, line 3, "an outer cylindrical surface".

*Claim Objections*

6. Claim 1 is objected to because line 3 recites "outer cylinder surface". It is believed this was intended to be recited as "outer cylindrical surface" as in line 8.

*Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2 & 5 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 198 16 278.

Figs. 1 & 15 show a drive shaft assembly comprising all the limitations of the claims.

9. Claims 1, 2 & 5 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,022,876.

The drawings show a drive shaft assembly comprising all the limitations of the claims.

10. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by GB 1126842. The drawings and page 3, lines 51-57 disclose a drive shaft assembly comprising all the limitations of the claim.

11. Claims 1, 2, 5, 6 & 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Sutaruk et al, US 3,408,830. Figs. 2 & 4 show a drive shaft assembly 15 for a automotive applications for transmitting a rotary drive, the drive shaft assembly comprising: a central flexible rotatable core shaft 28 having an outer cylindrical (see also col. 2, line last) surface; an outer sleeve 30 surrounding the central flexible core shaft 28 and spaced from the core shaft 28; and at least one rubber damper 71 located within the sleeve 30 and positioned at a location along the length of

the drive shaft assembly, the damper 71 extending to and abutting against the surface of the shaft

28. Fig. 1 shows the drive shaft assembly 15 comprising a part of a vehicle seat adjustment assembly 10 for transmitting rotary drive from a motor 11 to the adjustment assembly. Figs. 2 & 4 show that the sleeve 30 only extends along part of the length of the core shaft 28.

12. Claims 1, 2 & 5-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Moeller, US 2,889,695. The figure shows a drive shaft assembly 10 for automotive applications for

transmitting a rotary drive, the drive shaft assembly comprising: a central flexible rotatable core shaft 16 having an outer cylindrical surface; an outer sleeve 12 surrounding the central flexible core shaft and spaced from the core shaft; and at least one rubber damper 20 located within the sleeve 12 and positioned at a location along the length of the drive shaft assembly, the damper 20 extending to and abutting against the surface of the shaft. In col. 1, lines 70+ Moeller discloses that the damper 20 is placed at a location corresponding to one or more points of maximum resonant displacement. The figure shows that the sleeve 12 only extends along part of the length of the core shaft 16.

13. Claims 1 & 6-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Uryu et al, US

5,558,578 (Uryu). Figs. 1-6 show a drive shaft assembly for automotive applications for transmitting a rotary drive, the drive shaft assembly comprising: a central flexible rotatable core shaft 2 having an outer cylindrical surface; an outer sleeve 4 surrounding the central flexible core shaft and spaced from the core shaft; and at least one elastomer damper 6 located within the sleeve and positioned at a location along the length of the drive shaft assembly, the damper 6

extending to and abutting against the surface of the shaft. Fig. 3 shows dampers 6 placed at locations corresponding to one or more points of maximum resonant displacement.

*Claim Rejections - 35 USC § 103*

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Sutaruk and Moeller in view of Buchsteiner, US 2,761,297. Sutaruk and Moeller both show a damper but neither expressly discloses the damper with a cross sectional profile which radially tapers to an inner apex. Buchsteiner teaches at col. 1, lines 48-55 that a damper should be provided with a cross sectional profile which radially tapers to an inner apex in order to provide an improved support for a flexible shaft rotating at high speed. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the drive shaft assembly of either Sutaruk or Moeller by making its respective damper with a cross sectional profile which radially tapers to an inner apex in order to provide an improved support for a flexible shaft rotating at high speed as taught by Buchsteiner.

16. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Sutaruk and Moeller in view *International Seal & Packing Co. Catalog (ISP)*. Sutaruk and Moeller both

disclose a rubber material damper but neither expressly discloses the material as urethane. *ISP* teaches at page iii that urethane is a rubber material that provides good flexibility, good wear resistance and high mechanical strength. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the drive shaft assembly of either Sutaruk or Moeller by making its respective damper from urethane in order to provide a damper that has good flexibility, good wear resistance and high mechanical strength as taught by *ISP*.

17. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moeller in view of Matsuo, US 6,620,060. Moeller shows a drive shaft assembly comprising an outer sleeve that provides two points of support for a flexible shaft but does not expressly disclose making the outer sleeve so that it only partially surrounds the core shaft. Matsuo shows that an outer sleeve 60 that provides two points of support for a flexible shaft need only partially surround the flexible shaft (as at portion 72) in order to provide the shaft with two points of support. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the drive shaft assembly of Moeller by making the outer sleeve so that it only partially surrounds the core shaft as shown by Matsuo in order to provide an outer sleeve that is inherently lighter (due to less material) than one which fully surrounds the shaft.

### *Conclusion*

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Heslewood and Merot each show a elastomeric damper with a cross sectional profile which radially tapers. Baier shows a drive shaft assembly.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Binda whose telephone number is (703) 305-2869. The examiner can normally be reached on M-F 9:30 am to 7:00 pm with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (703) 308-2686. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Greg Binda  
Primary Examiner  
Art Unit 3679